

WHAT IS CLAIMED:

1. An automatic quartz-tube leveling device for manufacturing an optical-fiber preform according to a modified-chemical-vapor deposition (MCVD), comprising:

5 a quartz tube disposed in a horizontal supporting element;
a measuring device having at least one light-emitting device and at least one light-receiving device, the light-emitting device spaced apart from the light-receiving device over the quartz tube in an opposite position for measuring an upper eccentric value and a lower eccentric value with respect to an outer diameter of the quartz tube;

10 a controller for receiving the measured upper and lower eccentric values from the measuring device, and for comparing the measured values with predetermined reference values, respectively, to determine an eccentric difference value; and,

a transfer device, coupled to the controller, for adjusting the leveling of the quartz tube according to the eccentric difference value.

15 2. The device of claim 1, wherein the measuring device comprises a laser-scanning device.

20 3. The device of claim 1, wherein the measuring device comprises a scanning area that is substantially greater than the diameter of the quartz tube to measure the upper and lower eccentric values of the quartz tube.

4. The device of claim 1, wherein the transfer device further comprises a control motor; a ball screw coupled to the revolution shaft of the control motor; and, a ball screw block for movement to the right or left according to revolution of the ball screw.

5 5. The device of claim 4, further comprising a hydraulic cylinder coupled to the ball screw block for providing an up/down movement, and a leveling pad coupled with one end of the hydraulic cylinder via a spring for carrying out the leveling of the quartz tube.

10 6. The device of claim 5, wherein the leveling pad consists of a teflonTM pad.

7. A method for leveling a quartz tube when manufacturing an optical-fiber preform according to a modified-chemical-vapor deposition (MCVD), the method comprising the steps of comprising:

15 providing the quartz tube in a substantially horizontal orientation;

providing a traversing measuring device along the lateral direction of the quartz tube;

measuring an upper eccentric value and a lower eccentric value with respect to an outer diameter of the quartz tube;

20 comparing the measured upper and lower eccentric values with predetermined upper and lower reference values, respectively, to obtain an eccentric difference value; and,

adjusting the leveling of the quartz tube based on the eccentric difference value.

8. The method of claim 1, wherein the traversing measuring device comprises at least one light-emitting device and at least one light-receiving device, the light-emitting device spaced apart from the light-receiving device over the quartz tube in an opposite position for measuring the upper eccentric value and the lower eccentric value with respect
5 to the outer diameter of the quartz tube.

9. The method of claim 8, wherein the traversing measuring device comprises a laser-scanning device.

10. The method of claim 8, wherein the traversing measuring device comprises a scanning area that is substantially greater than the diameter of the quartz tube to measure the upper and lower eccentric values of the quartz tube.